DETAILED ACTION

This Office Action corresponds to application 10/594,852. Claims 15, 17, 20-22,

24, 26 and 27 are allowed over the prior art of record.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on August 23, 2011 was

considered by the examiner.

Response to Amendment

1.   The objection to Figure 6 is withdrawn in light of the amendment to the drawing.

2.   Applicant has amended claims 15, 21 and 24 to further distinguish the invention

over the prior art of record. In light of the amendments, the previous rejections to the

claims have been withdrawn.

Allowable Subject Matter

3.   Claims 15, 17, 20-22, 24, 26 and 27 are allowed.

Reasons for Allowance

4.   The following is an examiner's statement of reasons for allowance: the essential

difference from the prior art of record is that the independent claims require the

limitations stated below. The respective depending claims are allowed for the same

reason as their allowed base claim.

5.   Claims 15, 21 and 24 are considered allowable, specifically, because claims 15,

21 and 24 require identifying transaction items of the database and determining an

occurrence frequency for each item, wherein determining the occurrence frequency

includes: scanning a first portion of the database; identifying transaction items of the

first portion of the database with an occurrence frequency at least equal to a threshold

value; scanning a second portion of the database; and identifying transaction items of

the second portion of the database with an occurrence frequency at least equal to the

threshold value; locking the identified transaction items to prevent other data mining

processes from selecting the identified transaction items; building a probe structure

based on the identified frequent transaction items with an occurrence frequency at least

equal to twice the threshold value; building a plurality of disjoint branches for the probe

structure, wherein each branch of the probe structure includes a number of identified

transaction items selected based on content of the transaction items and the occurrence

frequency of the transaction items, at least two branches includes a common

transaction item, and each of the plurality of disjoint branches are capable of being

executed independently from the other plurality of disjoint branches; building a frequent

pattern tree (FP-tree) from the branches of the probe structure; grouping the branches

of the FP-tree into a plurality of groups, the grouping based on the content of the

transaction items of each branch, wherein the number of transactions in each of the

plurality of groups is substantially equal; and assigning, via a master processor, each

group of branches of the FP-tree to one of a plurality of slave processors, the plurality of

slave processors to execute the transaction items identified by the respective branch in

parallel with each other, wherein the number of transaction items to be executed by

each of the plurality of slave processors is substantially equal.

6.   The closest prior art of record is Han et al. ("Mining Frequent Patterns without

Candidate Generation: A Frequent-Pattern Tree Approach," *Data Mining and*

Knowledge Discovery, Pages 53-87, hereinafter referred to as Han), Agrawal et al.

(U.S. Patent No. 6,230,151 B1, hereinafter referred to as "Agrawal") and Zaki et al.,

"Parallel Classification for Data Mining on Shared-Memory Multiprocessors," pages 1-8,

hereinafter referred to as "Zaki"). However, none of these references alone or in

combination render the claims anticipated or obvious.

7.   Han discloses mining frequent patterns in transaction databases using a

frequent-pattern tree (FP-tree). Efficiency of mining is achieved through (1) a large

database is compressed into a condensed, smaller data structure, FP-tree which avoids

costly, database scans, (2) FP-tree based mining approach adopts a pattern-fragment

growth method to avoid the costly generation of a large number of candidate sets and

(3) a partitioning-based, divide and conquer method is used to decompose the mining

task into a set of smaller tasks for mining confined patterns in conditional databases.

E.g. abstract. However, Han fails to disclose building a probe structure based on the

identified frequent transaction items with an occurrence frequency at least equal to

twice the threshold value… grouping the branches of the FP-tree into a plurality of

groups, the grouping based on the content of the transaction items of each branch,

wherein the number of transactions in each of the plurality of groups is substantially

equal… assigning, via a master processor, the plurality of slave processors to execute

the transaction items identified by the respective branch in parallel with each other in

combination of claimed elements.

8.   Agrawal discloses a parallel classification for data mining in a shared-memory multiprocessor system. Lists of attributes are assigned to a processor. The processors independently determine the best splits for their respective assigned lists, and cooperatively determine a global best split for all attribute lists. However, Agrawal fails to disclose building a probe structure based on the identified frequent transaction items with an occurrence frequency at least equal to twice the threshold value… grouping the branches of the FP-tree into a plurality of groups, the grouping based on the content of the transaction items of each branch, wherein the number of transactions in each of the plurality of groups is substantially equal… assigning, via a master processor, the plurality of slave processors to execute the transaction items identified by the respective branch in parallel with each other in combination of claimed elements.

9.   Zaki discloses parallel algorithms for building decision-tree classifiers on shared-memory multiprocessor systems. The data parallelism is based on attribute scheduling among processors. However, Zaki fails to disclose building a probe structure based on the identified frequent transaction items with an occurrence frequency at least equal to twice the threshold value… grouping the branches of the FP-tree into a plurality of groups, the grouping based on the content of the transaction items of each branch, wherein the number of transactions in each of the plurality of groups is substantially equal… assigning, via a master processor, the plurality of slave processors to execute the transaction items identified by the respective branch in parallel with each other in combination of claimed elements.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

10. The prior art made of record, listed on form PTO-892, and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD BOWEN whose telephone number is (571)270-5982. The examiner can normally be reached on Monday through Friday 7:30AM - 4:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Kim can be reached on (571)272-7421. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. B./
Examiner, Art Unit 2157
October 19, 2011

/ROBERT TIMBLIN/
Primary Examiner, Art Unit 2167